



CHILDREN AND FAMILIES
EDUCATION AND THE ARTS
ENERGY AND ENVIRONMENT
HEALTH AND HEALTH CARE
INFRASTRUCTURE AND
TRANSPORTATION
INTERNATIONAL AFFAIRS
LAW AND BUSINESS
NATIONAL SECURITY
POPULATION AND AGING
PUBLIC SAFETY
SCIENCE AND TECHNOLOGY
TERRORISM AND
HOMELAND SECURITY

The RAND Corporation is a nonprofit institution that helps improve policy and decisionmaking through research and analysis.

This electronic document was made available from www.rand.org as a public service of the RAND Corporation.

Skip all front matter: [Jump to Page 1](#) ▼

Support RAND

[Purchase this document](#)

[Browse Reports & Bookstore](#)

[Make a charitable contribution](#)

For More Information

Visit RAND at www.rand.org

Explore the [RAND Corporation](#)

View [document details](#)

Limited Electronic Distribution Rights

This document and trademark(s) contained herein are protected by law as indicated in a notice appearing later in this work. This electronic representation of RAND intellectual property is provided for non-commercial use only. Unauthorized posting of RAND electronic documents to a non-RAND website is prohibited. RAND electronic documents are protected under copyright law. Permission is required from RAND to reproduce, or reuse in another form, any of our research documents for commercial use. For information on reprint and linking permissions, please see [RAND Permissions](#).

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2013		2. REPORT TYPE		3. DATES COVERED 00-00-2013 to 00-00-2013	
4. TITLE AND SUBTITLE Measuring Army Deployments to Iraq and Afghanistan				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) RAND Corporation, Arroyo Center, 1776 Main Street, P.O. Box 2138, Santa Monica, CA, 90407-2138				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 10	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

This report is part of the RAND Corporation research report series. RAND reports present research findings and objective analysis that address the challenges facing the public and private sectors. All RAND reports undergo rigorous peer review to ensure high standards for research quality and objectivity.

Measuring Army Deployments to Iraq and Afghanistan

Dave Baiocchi

Key findings

- The Army has provided the bulk of U.S. troops to Iraq and Afghanistan—over 1.5 million troop-years between September 2001 and December 2011, more than all the other services combined.
- Since 2008, the cumulative amount of time that a soldier has spent deployed has increased by an average of 28 percent.
- As of December 2011, roughly 73 percent of active component soldiers had deployed to Iraq and/or Afghanistan, up from 67 percent in December 2008.
- Most of the remaining 27 percent who have not yet deployed are recent recruits, are forward-stationed in other overseas locations, or have contributed to operations in Iraq and/or Afghanistan by directly supporting the mission from the continental United States.
- The Army retains very little unutilized capacity to deploy additional active component soldiers without lengthening deployments or shortening the time between deployments, both of which increase the burden on those who have already deployed.

SUMMARY ■ How many soldiers have served in Iraq and Afghanistan? What has the troop mix looked like since the start of operations in September 2001? What effect, if any, has cumulative time in theater had on the Army's capacity to deploy?

In October 2008, the Vice Chief of Staff of the U.S. Army asked RAND to assess the demands placed upon the Army by deployments to Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) in Afghanistan. Army leadership was interested in understanding how many soldiers had served in theater over the course of OIF and OEF.

RAND conducted an initial analysis of these issues using December 2008 data; this document summarizes an update to that analysis using December 2011 data.¹ For the analysis, researchers used data from the Defense Manpower Data Center (DMDC), which uses the Contingency Tracking System (CTS) to track personnel involved in contingency operations. The analyses focused on the active components (ACs) of the services, but with particular attention to the Army's AC.²

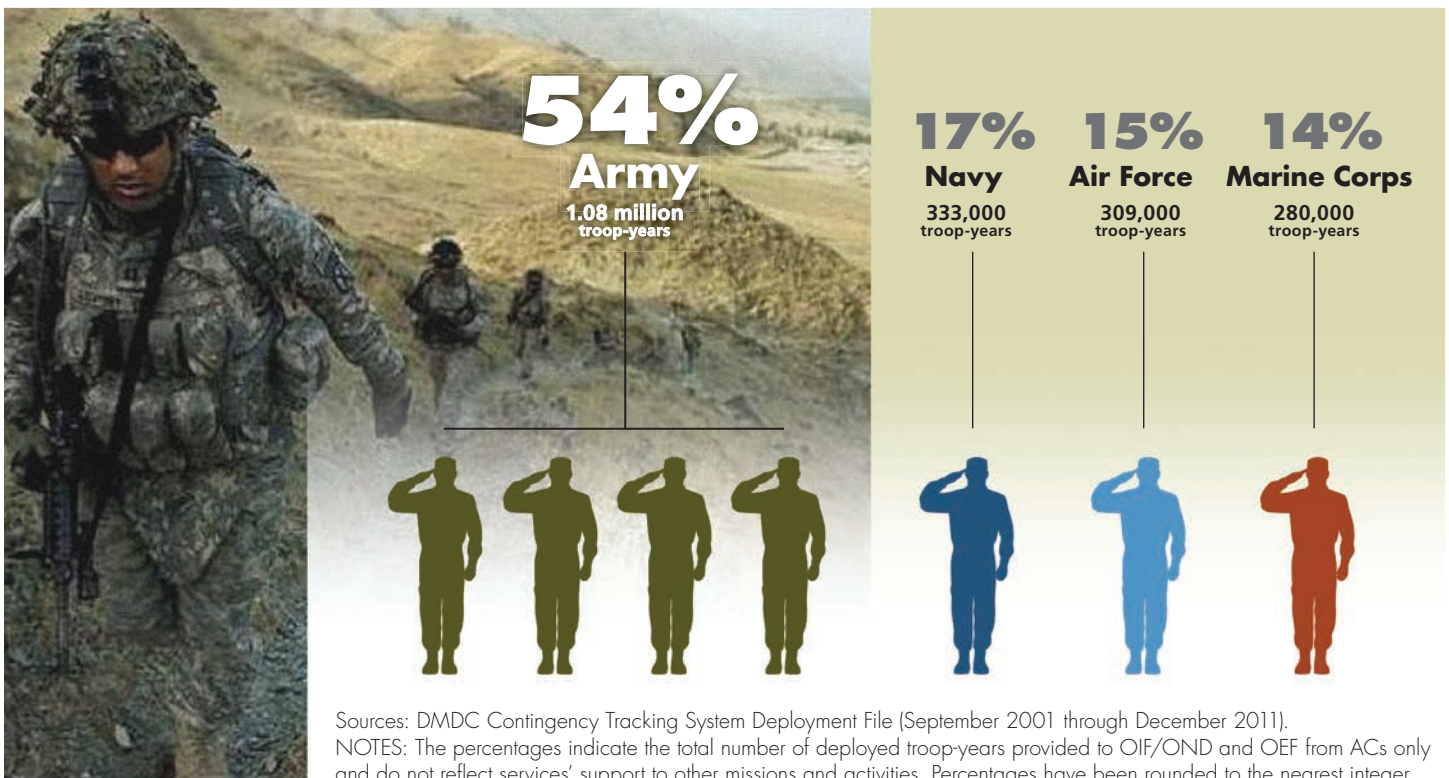
Though telling, the findings were not necessarily surprising. The Army has provided the bulk of U.S. troops to Iraq and Afghanistan—over 1.5 million troop-years as of December 2011, more than all the

other services combined. Moreover, the cumulative amount of time that a soldier has spent deployed has increased by an average of 28 percent since 2008. In contrast, the percentage “not yet deployed” and the Army's unutilized capacity to deploy have both decreased.

As of December 2011, roughly 73 percent of AC soldiers had deployed to Iraq and/or Afghanistan, up from 67 percent in December 2008. Most of these soldiers were working on their second, third, or fourth year of cumulative deployed duty. Most of the remaining 27 percent who have not yet deployed are recent recruits, are forward-stationed in other overseas locations, or have contributed to operations in Iraq and/or Afghanistan by directly supporting the mission from the continental United States (e.g., intelligence analysts or recruiters).

The Army, therefore, retains very little unutilized capacity to deploy additional AC soldiers without lengthening deployments or shortening the time between deployments, both of which increase the burden on those who have already deployed—a challenge Army leaders and policy-makers will be engaged with for the foreseeable future.

The Army Has Provided Almost 4 in 7 of the Total Deployments to Operations in Iraq and Afghanistan



The Army has provided over 1.5 million troop-years to operations in Iraq and Afghanistan.

MEASURING THE TOTAL NUMBER OF TROOP DEPLOYMENTS THE ARMY HAS PROVIDED

One way to measure the Army's contributions to OIF (it has been referred to as Operation New Dawn [OND] since September 2010) in Iraq and OEF in Afghanistan is by the total number of troop-years deployed. A troop-year is a metric used to measure cumulative deployment length. For example, one troop-year is equivalent to any of the following cases: one soldier spending 12 months deployed, two soldiers deployed for six months (each), one soldier deployed for eight months and another soldier deployed for four months, and 12 soldiers deployed for one month each.

As of December 2011, the Army had provided over 1.5 million troop-years to OIF/OND and OEF—a 50 percent increase since December 2008. This includes both Army AC and mobilized reserve-component soldiers who have served in OIF/OND and/or OEF at any time since the beginning of the conflicts. Together, the Army AC alone has contributed nearly 1.1 million troop-years to these two operations.

The Army Has Provided More Troops Than All the Other Services Combined

The Army has provided, by far, the largest portion of troop-years in support of OIF/OND and OEF, relative to the other services. Specifically, Army AC soldiers have provided 54 percent of the cumulative troop-years deployed to Iraq and/or Afghanistan, even though the Army represents only 40 percent of the total U.S. AC force. This represents a slight increase from December 2008, when 52 percent of all AC deployments were Army soldiers. The Army's reserve deployments are also much

higher than those of the other services. While these results are not surprising (OIF/OND and OEF have been predominantly ground operations), the results do highlight the demands placed on the Army.

MEASURING HOW LONG INDIVIDUAL SOLDIERS HAVE BEEN DEPLOYED

A second way in which to consider the services' contributions to operations in Iraq and/or Afghanistan is the cumulative time that individual soldiers, sailors, airmen, and marines have spent deployed.

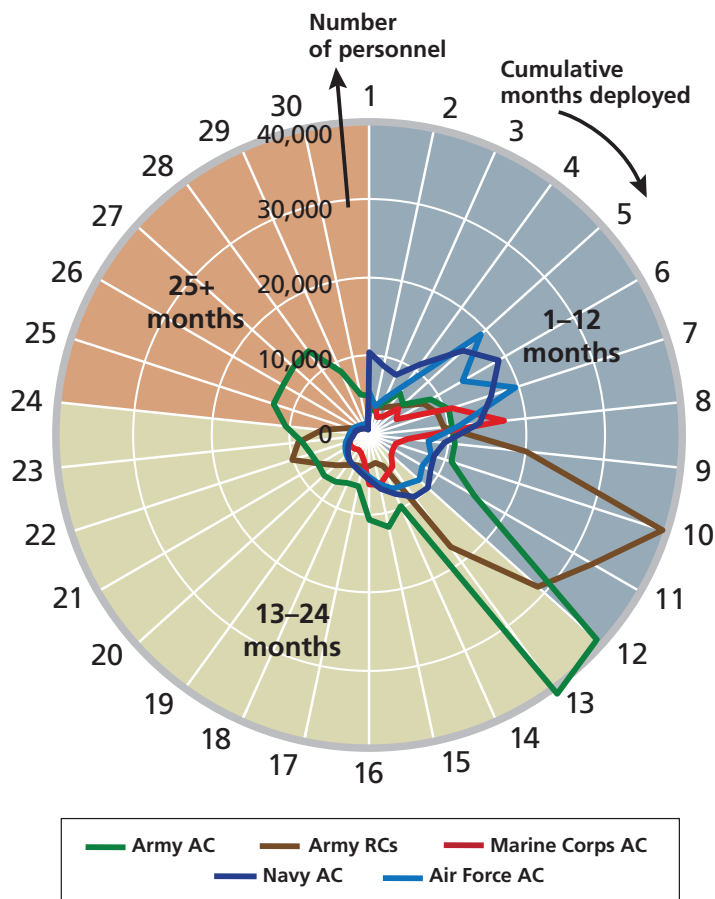
Examples of interesting data include that 38,800 AC soldiers have spent 12 months of their time in the Army deployed. (Because these data are cumulative, the 12 months of deployment time could have been accumulated over more than one deployment.) Similarly, 40,500 AC soldiers have spent 13 months deployed, and 9,800 AC soldiers have accumulated 14 months of deployed time. For the purpose of comparison, the complete deployment numbers, grouped by years of deployment, are provided in the table on page 5. They reveal that the Army, both its active and reserve components, has more of its service members with relatively high cumulative months deployed than the other services. Since 2008, the cumulative amount of time that a soldier has spent deployed has increased by an average of 28 percent (not shown in the table).

Of particular note are the 136,000 AC soldiers working on their second year of cumulative deployment time and an additional 136,000 AC soldiers working on their third year or longer of cumulative deployment time.

Soldiers' Cumulative Time Deployed Exceeds That for Other Services

Cumulative Time That Individuals Have Deployed to OIF/OND and OEF Between September 2001 and December 2011, by Month

This radar chart plots the cumulative months that individuals have spent deployed to OIF/OND and OEF against the number of personnel that have been deployed for that time. We chose a radar plot for these data because it is useful for highlighting how long the bulk of the troops in each service have spent deployed. The numbers around the outside circle (proceeding in a clockwise direction from the top of the circle) depict cumulative months deployed, and the rings (moving radially outward from the center of the chart) depict the number of service members who have been deployed for that period of time.



Source: DMDC OEF/OIF Deployment File (December 2011).

Since 2008, there has been a significant increase in the number of soldiers who have spent two or more years (25+ months) cumulatively deployed.

TRENDS IN CUMULATIVE DEPLOYMENT TIME

Since 2008, the Percentage of Army Soldiers Who Have Deployed Has Increased

Most AC soldiers (73 percent) have deployed to OIF/OND and/or OEF—an increase of 6 percentage points from December 2008. Most of those soldiers have spent, cumulatively, more than one year deployed (49 percent of all AC soldiers and 68 percent of AC soldiers that have deployed).

Since 2008, There Has Been an Increase in the Number of Soldiers Who Have Accumulated Two or More Years of Deployments

Furthermore, there has been a significant increase in the number of soldiers who have spent two or more years (25+ months) cumulatively deployed since October 2001. Between September 2001 and December 2008 (the time period considered in the initial analysis), 69,000 soldiers had spent between 25 and 36 months cumulatively deployed. As of December 2011, in comparison, there were 95,000 soldiers who fit this description.

Likewise, in December 2008, there were 9,000 soldiers who had spent more than 36 months deployed. By December 2011, that number had risen dramatically, to about 41,600 soldiers.

Another way to describe this trend is to examine the distribution of time spent deployed among the population with at least one deployment. For AC soldiers with any deployment time in December 2011, the proportion with at least 25 months of deployed duty was 34 percent. As a comparison, in December 2008, only 21 percent of AC soldiers with any deployment time had at least 25 months of deployed duty.

Since 2008, There Has Been a Decrease in the Fraction of Soldiers That Have Not Yet Deployed

Between December 2008 and December 2011, there was also a decrease, from 33 percent to 27 percent, in the percentage of soldiers who have not yet deployed. This reduction is likely due to three factors. First, during this time period, the Army reduced the number of new recruits it brought in to the AC, and this has resulted in a more senior, experienced force. According to the Department of Defense, in fiscal year 2008, for example, the Army had about 80,500 accessions, compared with only 64,000 accessions in FY2011.³ New recruits

Cumulative Time That Individuals Have Deployed to OIF/OND and OEF Between September 2001 and December 2011, by Year

Years of Deployed Duty	Army	Navy	Air Force	Marine Corps
Not yet deployed	151,341 (27.3%)	108,021 (34.0%)	133,989 (40.9%)	77,233 (38.6%)
1 year (1–12 months)	131,057	141,232	118,035	66,459
2 years (13–24 months)	135,876	57,460	55,885	44,148
3 years (25–36 months)	94,574	9,479	15,498	10,584
4 years (37–48 months)	35,705	1,564	3,501	1,362
5+ years (49+ months)	5,959	368	1,029	161
Total	554,512	318,124	327,937	199,947

NOTE: In the table, partial years of deployment are counted as a full year. For example, the “1 year” row includes all AC soldiers, sailors, airmen, and marines in some stage of beginning or completing their first cumulative year of deployed duty (i.e., 1–12 months of cumulative deployment time).

account for a majority of the “not yet deployed” population. This decrease in accessions, at a time the Army was *increasing* AC end strength, resulted in new recruits making up a smaller percentage of the force.

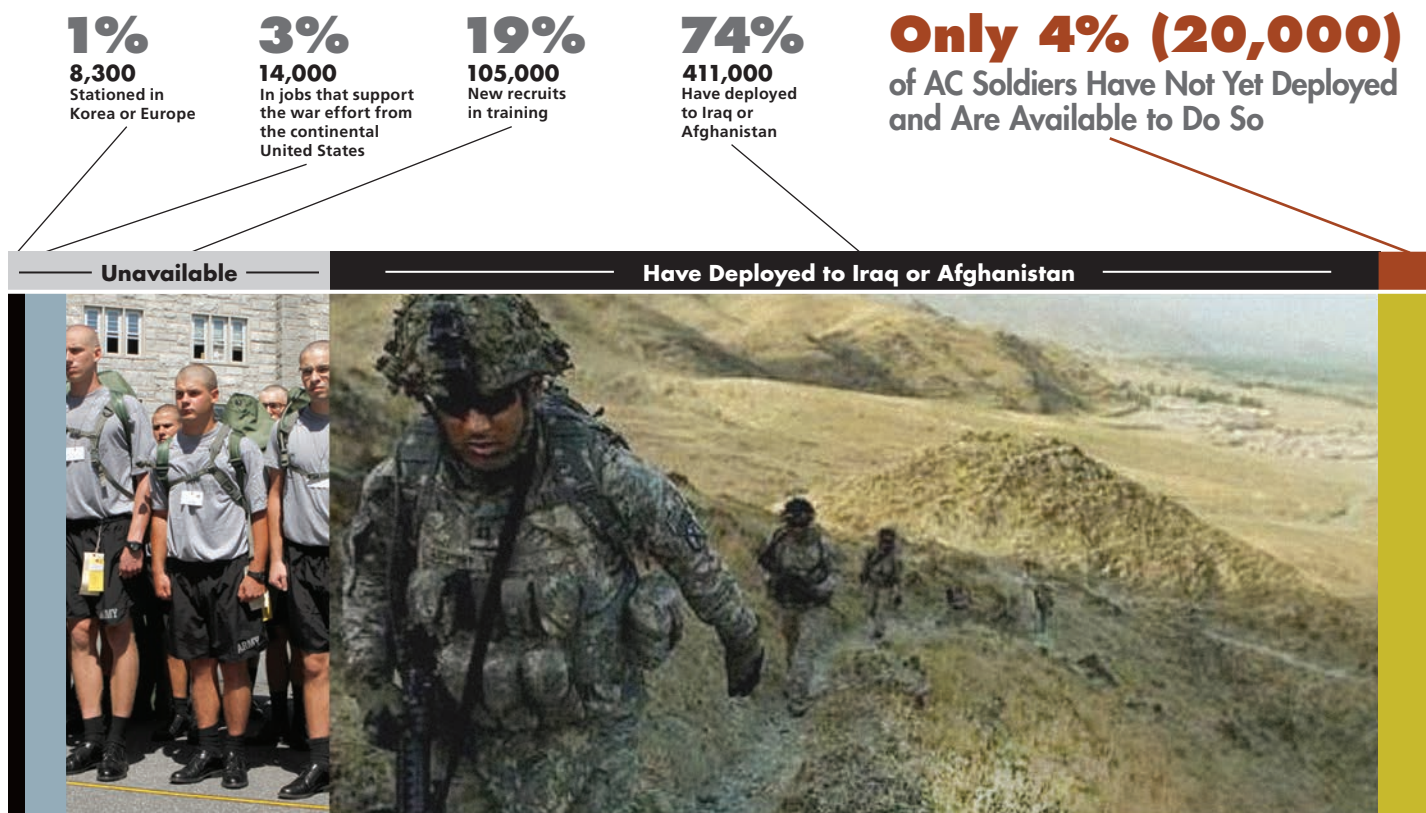
Second, since 2001, the Army has been adjusting the balance between its combat forces and infrastructure (i.e., that part of the Army responsible for training, equipping, and supporting the combat forces). In December 2002, 33 percent of the AC Army was classified as “infrastructure”; by December 2011, this figure had been reduced to 28 percent, leaving more soldiers available for operational units that are getting ready to deploy.

Finally, in December 2008, roughly 28,000 soldiers had not yet deployed because they were in jobs that were based outside the combat theaters (e.g., recruiters, medical/health professionals, intelligence analysts, air and missile defenders). By December 2011, the number of not-yet-deployed soldiers in these job descriptions had been reduced to about 14,000. In addition, while these jobs still represent skill sets that are

much less likely to deploy, more of them are doing so, especially since 2008.

THE ARMY RETAINS VERY LITTLE EXCESS CAPACITY

As the table on page 5 shows, out of an AC strength of approximately 554,000 soldiers in December 2011, about 151,000 soldiers (27 percent) had not yet deployed. However, the majority of these soldiers are recent recruits that are still in training or are in their first unit of assignment and preparing for deployment. These new soldiers account for a majority (105,000) of the Army’s not-yet-deployed soldiers, and roughly 4,000 more personnel are cadets at the U.S. Military Academy at West Point, who count against the Army’s AC strength. It is therefore more accurate to say that one quarter of the Army has not *yet* deployed to Iraq or Afghanistan.



Of the remaining 42,000 soldiers, over 8,300 are forward-stationed in Korea, Europe, or other overseas locations. Another 14,000 are in military occupational specialties that support and sustain the current war efforts with such skills as recruiting or intelligence analysis, but they are not physically located within Iraq or Afghanistan. These soldiers may deploy if they are sent as individual replacements, or they may deploy in a subsequent assignment.

In summary, about 20,000 soldiers, or about 4 percent of the AC force, are in the United States, have more than two years in the Army, but have not yet deployed to OIF/OND or OEF. In December 2008, this number was slightly larger, but still only about 6 percent of the AC force. Therefore, we conclude that the Army retains very little unutilized capacity to deploy additional AC soldiers without extending deployment lengths or decreasing the time between deployments, both of which increase the burden on those who have already deployed.

Notes

¹ The 2008 analysis is documented in Timothy M. Bonds, Dave Baiocchi, and Laurie L. McDonald, *Army Deployments to OIF and OEF*, Santa Monica, Calif.: RAND Corporation, DB-587-A, 2010. As of November 27, 2012: www.rand.org/t/DB587

² This definition does *not* include guard or reservists who may have deployed as a result of being mobilized.

³ U.S. Department of Defense, "DoD Announces Recruiting and Retention Numbers for Fiscal 2008," October 10, 2008; U.S. Department of Defense, "Services Announce Recruiting Numbers for Fiscal 2011," October 21, 2011.

About This Report

This work was performed as a direct-support effort by RAND Arroyo Center to the Office of the Vice Chief of Staff, U.S. Army, and to the Army Quadrennial Defense Review (QDR) Office and conducted within the RAND Arroyo Center's Manpower and Training Program. RAND Arroyo Center, part of the RAND Corporation, is a federally funded research and development center sponsored by the United States Army.

The research described in this report was sponsored by the United States Army under Contract No. W74V8H-06-C-0001.

The Project Unique Identification Code (PUIC) for the project that produced this document is HQD115839.

About the Author

Dave Baiocchi (pronounced "bi-O-key") is a senior engineer at the RAND Corporation and a professor at the Pardee RAND Graduate School. Since joining RAND in 2008, he has addressed a variety of issues for the U.S. government, ranging from cleaning up space debris to accelerating innovation within the intelligence community. Prior to joining RAND, Baiocchi worked at Sandia National Laboratories in Albuquerque, New Mexico, as a senior member of the technical staff. Baiocchi received his B.S. in physics from DePaul University and his Ph.D. in optical sciences from the University of Arizona.

© Copyright 2013 RAND Corporation
Library of Congress Cataloging-in-Publication Data are available for this publication.
ISBN 978-0-8330-7868-1

www.rand.org



The RAND Corporation is a nonprofit institution that helps improve policy and decisionmaking through research and analysis. RAND focuses on the issues that matter most, such as health, education, national security, international affairs, law and business, the environment, and more. As a nonpartisan organization, RAND operates independent of political and commercial pressures. We serve the public interest by helping lawmakers reach informed decisions on the nation's pressing challenges. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. **RAND®** is a registered trademark.